New York State Department of Transportation (NYSDOT)
Tier II Transit Asset Management Plan

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Contents

New York State Department of Transportation Group TAM Plan Approval

Transit asset management plans are required for all Federal Transit Administration (FTA) grantees per MAP-21 legislation. Moreover, developing a transit asset management plan makes good business sense. The benefits from enhanced asset management practices include improved system safety and reliability, reduced costs, better customer service, and optimized resource allocation.

The attached NYSDOT Transit Asset Management (TAM) Plan outlines the policies, processes and procedures to improve asset management practices over the next five years and has the support of the designated Accountable Executive.

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Ronald L. Epstein Date
New York State Department of Transportation
Executive Deputy Commissioner/CFO

Introduction

In 2016, the Federal Transit Administration (FTA) published 49 CFR Part 625 requiring public transit providers receiving Federal transit assistance to undertake certain transit asset management activities. Transit asset management leverages data to improve investment decision-making, reliability, safety, cost management, and customer service and is a cornerstone of effective performance management.

Background

Maintaining transit assets, such as revenue vehicles, infrastructure, equipment, and facilities, in a state of good repair (SGR) is essential to maintaining safety, ensuring system reliability, and reducing long-term maintenance costs.

In 2010, FTA identified more than 40% of bus assets and 25% of rail transit assets as being in marginal or poor condition[1], with an estimated backlog of $50–$80 billion in deferred maintenance and replacement needs. The magnitude of these capital needs, and increased performance, and accountability expectations requires transit managers and accountable executives manage assets more effectively while recognizing fiscal constraints.

In July 2016, FTA published a Final Rule for Transit Asset Management requiring FTA grantees to develop asset management plans for their public transportation assets, including vehicles, facilities, equipment, and other infrastructure.

The Moving Ahead for Progress in the 21st Century Act (MAP-21), reauthorized in the Fixing America's Surface Transportation (FAST) Act, requires FTA to develop a rule to establish a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively through their entire life cycle. FTA's national Transit Asset Management System Rule:

- Defines SGR
- Requires grantees to develop Transit Asset Management (TAM) plans
- Establishes performance measures
- Establishes annual reporting requirements to the National Transit Database (NTD)
- Requires FTA to provide technical assistance

Transit providers are grouped into one of two tiers, Tier I and Tier II, that govern the roles and responsibilities in the development and implementation of TAM Plans. Tier I providers must develop their own, individualized TAM plan. Tier II providers may develop their own individualized plan or be included in a group plan developed by a sponsor, which for this plan is NYSDOT.

Asset management processes are ongoing and involve evaluating and managing the relationships between costs, risks, and performance over the asset's lifecycle. NYSDOT's transit asset management framework includes the establishment of asset management policy and strategy that drives resource allocation; asset lifecycle data (inventory) management; condition and performance monitoring; and consideration of information from all asset classes in support of the capital programming and operations and maintenance budgeting process.

[1] FTA 2010 National State of Good Repair Assessment

TAM Plan Participants

NYSDOT, with input from plan participants, set unified targets which are shared with the appropriate MPOs. NYSDOT requires all participants to provide any information necessary and relevant to completing the original plan and any future revisions.

See Appendix E for a listing of NYSDOT Group TAM Plan Participants.

TAM Plan Requirements

Developed in accordance with FTA guidelines[2], and in coordination with each Tier II provider's Accountable Executive, NYSDOT's Tier II Transit Asset Management Plan includes:

- An inventory of the number and type of capital assets. (Appendix C)
- A condition assessment of those inventoried assets for which a provider has direct capital responsibility. (Appendices D1-D3)
- A description of analytical processes or decision-support tools used to estimate capital investment needs over time.
- A project-based investment prioritization.

NYSDOT will further ensure the availability of the plan to all participants in a format that is easily accessible.

TAM Plan Performance Measures

Useful Life Benchmark (ULB)

The 2017 FTA Award Management Requirements Circular 5010.1E[3] sets forth useful life requirements under grant programs and refers to eligibility for replacement of an asset with FTA funds, which is different from the TAM Useful Life Benchmark (ULB). The ULB refers to the maximum age of the asset, or the point at which the asset enters the state of good repair backlog. The ULB is used solely for setting state of good repair performance measure targets for equipment and revenue vehicles asset categories. Table A describes the ULB for the NYSDOT Group TAM Plan.

[2] See §625.25

[3] See also Program Circulars

Table A: ULB for NYSDOT Group TAM Plan

	Useful Life in Miles	Useful Life in Years
BR1 - Over-the-road Bus (5311)	500,000	12
BU - Bus (5310)	350,000	10
BU1 - Bus (5307)	350,000	10
BU1 - Bus (5311)	350,000	10
CU - Cutaway Bus (5310)	150,000	5
CU1 - Cutaway Bus (5307)	150,000	5
CU1 - Cutaway Bus (5311)	150,000	5
RT - Rubber-tire Vintage Trolley (5307)	500,000	12
RT - Rubber-tire Vintage Trolley (5311)	500,000	12
Suburban (5310)	150,000	5
VN - Van (5310)	150,000	5

Transit Economic Requirements Model (TERM) Scale

The FTA's TERM Scale facility condition assessments as reported to the NTD have one overall TERM rating per facility as described in Table B. The facility condition assessment must be reported to NTD as a TERM rating score.

Table B: FTA TERM Scale

Condition Assessment Rating Scale		
Rating	**Condition**	**Description**
4.8-5.0	Excellent	No visible defects, new or near new condition, may still be under warranty
4.0-4.7	Good	Good condition, but no longer new, some slightly defective or deteriorated component(s), but is overall functional
3.0-3.9	Adequate	Moderately deteriorated or defective components; but has not exceeded useful life
2.0-2.9	Marginal	Defective or deteriorated component(s) in need or replacement; exceeded useful life
1.0-1.9	Poor	Critically damaged component(s) or in need of immediate repair; well past useful life

NYSDOT TAM Plan Targets

In setting the NYSDOT TAM Plan targets, consideration of the ULB, TERM scale, and one or more the following asset characteristics shown in Table C, formed the basis for developing performance targets:

Table C: Asset Characteristics with Condition Assessment

Condition Rating Description	**Age** Percent within ULB	**Condition** Quality/Level Maintenance Required	**Performance** Reliability, Safety, Compliance with Industry Standards	**Maintenance** Level of Preventive/Corrective Maintenance
Excellent	Asset new or nearly new 75% - 100%	New or like new; no visible defects	Meets or exceeds all performance and reliability metrics, industry standards	No unfunded or deferred maintenance activities
Good	Asset nearing or at its midlife point 50%-75%	Minimal signs of wear or usage; some slight defects or deterioration	Generally meets performance and reliability metrics, industry standards	Corrective maintenance increasing; no skipped preventive or corrective maintenance
Adequate	Asset has passed its midlife point 25%-50%	Moderately defective or deteriorated components expected maintenance needs	Occasional performance/ reliability issues; substandard in some areas	More frequent corrective maintenance required and some minor component/structural failures
Marginal	Asset nearing or at end of its useful life 0%-25%	Increasing numbers of defects/structural issues; deteriorating components; growing maintenance needs	Performance and reliability problems becoming more serious; sub-standard elements	Corrective maintenance activities frequently, including major components needing replacement or rehabilitation
Poor	Asset passed its useful life	In need of replacement or restoration; may have critically damage	Frequent performance and reliability problems; does not meet industry standards	Major component/structural failures

Table D: Performance Targets represents realistic goals given historical annual investment levels and available funding for the NYSDOT Group TAM Plan period.

Table D: Performance Targets

Asset Category - Performance Measure	Asset Class	2019 Target	2020 Target	2021 Target	2022 Target	2023 Target
REVENUE VEHICLES						
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	BR1 - Over-the-road Bus (5311)	33%	33%	17%	17%	17%
	BU1 - Bus (5311)	18%	16%	17%	12%	11%
	CU1 - Cutaway Bus (5311)	47%	45%	36%	41%	32%
	RT - Rubber-tire Vintage Trolley (5311)	0%	0%	0%	0%	0%
	BU - Bus (5310)	0%	0%	0%	0%	0%
	CU - Cutaway Bus (5310)	20%	18%	16%	21%	20%
	VN - Van (5310)	0%	0%	0%	0%	0%
	Suburban (5310)	0%	0%	0%	0%	0%
	BU1 - Bus (5307)	21%	21%	23%	21%	21%
EQUIPMENT						
Age - % of equipment that has met or exceeded its Useful Life Benchmark	All Equipment (5311)	33%	33%	33%	33%	33%
	All Equipment (5307)	0%	0%	0%	0%	0%
FACILITIES						
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Maintenance (5311)	0%	0%	0%	0%	0%
	Passenger Facilities (5311)	0%	0%	0%	0%	0%
	All Facilities (5311)	0%	0%	0%	0%	0%
	Admin & Maint (5311)	0%	0%	0%	0%	0%
	Park & Ride (5311)	0%	0%	0%	0%	0%
	Maintenance (5307)	55%	55%	55%	55%	55%
	Passenger Facilities (5307)	0%	0%	0%	0%	0%
	Admin & Maint (5307)	0%	0%	0%	0%	0%

Asset Inventory

Data Collection

NYSDOT requires subrecipients to submit revenue vehicles data at regular intervals, and to report facility and equipment condition at least annually. An inventory database tracks and accounts for individual assets and condition, including useful life. Performance measures for the Tier II categories of assets are determined using pre-determined criteria for SGR, onsite monitoring visits, and through annual and semi-annual reports and program applications.

See Appendix C - Asset Register for the complete asset inventory listing. Table E summarizes Plan participant assets by Category/Class within FTA program type:

Table E: Asset Summary

Asset Category/Class	Total Number	Avg Age	Avg Mileage	Avg Replacement Cost
RevenueVehicles	**2,054**	**6.4**	**113,613**	**$104,371**
BR1 - Over-the-road Bus (5311)	6	8.2	297,625	$450,000
BU1 - Bus (5311)	140	9.0	187,211	$246,000
CU1 - Cutaway Bus (5311)	349	6.5	138,698	$63,500
RT - Rubber-tire Vintage Trolley (5311)	5	12.4	55,306	$640,000
BU - Bus (5310)	150	6.4	127,699	$246,000
CU - Cutaway Bus (5310)	1,029	6.7	95,709	$63,500
VN - Van (5310)	4	0.5	3,400	$45,000
Suburban (5310)	231	1.3	14,761	$65,000
BU1 - Bus (5307)	140	9.2	254,433	$246,000
Equipment	**13**	**4.2**	**N/A**	**$198,087**
All Equipment (5311)	12	3.9	N/A	$151,084
All Equipment (5307)	1	8.0	N/A	$762,120
Facilities	**25**	**20.9**	**N/A**	**$4,221,937**
Maintenance (5311)	2	13.5	N/A	$3,500,000
Passenger Facilities (5311)	1	13.0	N/A	$1,200,000
All Facilities (5311)	1	10.0	N/A	$400,000
Admin & Maint (5311)	9	24.2	N/A	$3,364,311
Park & Ride (5311)	1	0.0	N/A	$900,000
Maintenance (5307)	9	24.6	N/A	$4,157,737
Passenger Facilities (5307)	1	14.0	N/A	$12,750,000
Admin & Maint (5307)	1	20.0	N/A	$15,600,000

Condition Assessments

Table F- Condition Assessment Summary summarizes the condition of assets using the Useful Life Benchmark (ULB) or TERM metrics as appropriate. Factors used in the analysis of condition include the useful life benchmark, useful mileage benchmark, and condition assessment.

Asset listings include pertinent information (mileage, acquisition year, asset class etc.) that informs a forecasting tool used to create condition forecasts for the Plan period. See Appendix D1: Asset Condition Data- Revenue Vehicle Assets.

Table F: Condition Assessment Summary

Asset Category/Class	Count	Avg Age	Avg Mileage	Avg TERM Condition	Avg Cost	% At or Past ULB
RevenueVehicles	2,054	6.4	113,613	N/A	$104,371	21.7%
BR1 - Over-the-road Bus (5311)	6	8.2	297,625	N/A	$450,000	33.3%
BU1 - Bus (5311)	140	9.0	187,211	N/A	$246,000	18.6%
CU1 - Cutaway Bus (5311)	349	6.5	138,698	N/A	$63,500	47.0%
RT - Rubber-tire Vintage Trolley (5311)	5	12.4	55,306	N/A	$640,000	0.0%
BU - Bus (5310)	150	6.4	127,699	N/A	$246,000	0.0%
CU - Cutaway Bus (5310)	1,029	6.7	95,709	N/A	$63,500	21.2%
VN - Van (5310)	4	0.5	3,400	N/A	$45,000	0.0%
Suburban (5310)	231	1.3	14,761	N/A	$65,000	0.0%
BU1 - Bus (5307)	140	9.2	254,433	N/A	$246,000	25.7%
Equipment	13	4.2	N/A	N/A	$198,087	38.5%
All Equipment (5311)	12	3.9	N/A	N/A	$151,084	33.3%
All Equipment (5307)	1	8.0	N/A	N/A	$762,120	100.0%
Facilities	25	21.0	N/A	3.4	$4,221,937	N/A
Maintenance (5311)	2	13.5	N/A	4.2	$3,500,000	N/A
Passenger Facilities (5311)	1	13.0	N/A	4.2	$1,200,000	N/A
All Facilities (5311)	1	10.0	N/A	4.2	$400,000	N/A
Admin & Maint (5311)	9	24.4	N/A	3.9	$3,364,311	N/A
Park & Ride (5311)	1	0.0	N/A	5.0	$900,000	N/A
Maintenance (5307)	9	24.6	N/A	2.6	$4,157,737	N/A
Passenger Facilities (5307)	1	14.0	N/A	3.0	$12,750,000	N/A
Admin & Maint (5307)	1	20.0	N/A	3.0	$15,600,000	N/A

Decision Support Tools

NYSDOT determines SGR through the use of capital asset condition information collected from Plan participants through required annual, semi-annual and other asset reporting activities, including TAM Plan submissions. Assets are visually inspected at the time of on-site monitoring visits.

Investment Prioritization

NYSDOT prioritizes investments in capital assets by ranking projects to improve and actively manage the SGR over the Plan period. Vehicle age and usage statistics are the primary considerations when ranking priorities, however secondary considerations, such as environmental factors (winter conditions) and vehicle records are also used in the decision-making process. Additionally, the Federal Sections 5310 and 5311 grant cycles, available state and local funding and the demand for new or expanded services and/or equipment will need to be considered as NYSDOT plans for Capital asset replacements.

See Appendix B: NYSDOT Group TAM Plan Proposed Investment Project Priorities List.

Appendix A: Definitions

Asset category - grouping of asset classes: equipment, revenue vehicles, infrastructure, and facilities.

Asset class - a subgroup of capital assets within an asset category, e.g. buses, trolleys, and cutaway vans are asset classes within the revenue vehicles asset category.

Asset inventory - register of capital assets and information about those assets.

Capital asset - a unit of revenue vehicles or equipment, a facility, or an element of infrastructure used for providing public transportation.

Condition assessment - assessment of an asset's overall condition in a level of detail sufficient to monitor and predict the performance of the assets and to inform the investment prioritization.

Decision support tool - an analytic process or methodology used to prioritize projects to improve and maintain the state of good repair of capital assets within a public transportation system, based on available condition data and objective criteria; or to assess financial needs for asset investments over time.

Direct recipient (DR)- an entity that receives funding directly from FTA.

Equipment - an article of nonexpendable, tangible property having a useful life of at least one year.

Facility -means a building or structure that is used in providing public transportation.

Infrastructure- the underlying framework or structures that support a public transportation system.

Inventory- includes all capital assets that the provider owns, except equipment with an acquisition value under $50,000 that is not a service vehicle; third- party owned or jointly procured exclusive-use maintenance facilities, passenger station facilities, administrative facilities, revenue vehicles, and guideway infrastructure used by a provider in the provision of public transportation; and be organized at a level of detail commensurate with the level of detail in the provider's program of capital projects. See also Asset Inventory.

Investment prioritization - ranking of capital projects or programs to achieve or maintain SGR that is based on financial resources from all sources that a transit provider reasonably anticipates will be available over the TAM plan period.

Participant - Tier II provider that participates in NYSDOT's group TAM plan.

Performance target - quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FTA.

Public transportation system -entirety of a transit provider's operations, including the services provided through contractors.

Recipient - an entity that receives Federal financial assistance under 49 U.S.C. Chapter 53, either directly from FTA or as a NYSDOT subrecipient.

Revenue Vehicles - revenue vehicle used to provide public transportation, including vehicles used for carrying passengers on fare-free services.

Service vehicle means a unit of equipment that is used primarily either to support maintenance and repair work for a public transportation system or for delivery of materials, equipment, or tools.

Sponsor means a State, a designated recipient, or a direct recipient that develops a group TAM for at least one tier II provider. For this plan, NYSDOT is the sponsor.

Subrecipient means an entity that receives Federal transit grant funds indirectly through a State or a direct recipient.

Tier I provider- a recipient that owns, operates, or manages either (1) one hundred and one (101) or more vehicles in revenue service during peak regular service across all fixed route modes or in any one non-fixed route mode, or (2) rail transit.

Tier II provider- a recipient that owns, operates, or manages (1) one hundred (100) or fewer vehicles in revenue service during peak regular service across all non-rail fixed route modes or in any one non-fixed route mode, (2) a subrecipient under the 5311 Rural Area Formula Program, or (3) or any American Indian tribe.

Transit asset management (TAM)- the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost- effective, and reliable public transportation.

TAM plan- a plan that includes an inventory of capital assets, a condition assessment of inventoried assets, a decision support tool, and a prioritization of investments.

TAM policy - the documented commitment to achieving and maintaining SGR for capital assets that defines and assigns the transit provider's TAM objectives, roles and responsibilities for meeting those objectives.

TAM strategy - the approach used to carry out TAM policy including its objectives and performance targets.

Transit provider (provider)- a recipient or subrecipient of Federal financial assistance under 49 U.S.C. chapter 53 that owns, operates, or manages capital assets used in providing public transportation.

Useful life benchmark (ULB) - the expected life cycle or the acceptable period of use in service for a capital asset, as determined by a transit provider/State, or the default benchmark provided by FTA.

Useful mileage benchmark (UMB)- the expected mileage cycle or the acceptable mileage during the life of a capital asset – vehicle, as determined by NYSDOT.

Appendix C: Asset Register

Asset Category	Asset Class	Asset Name	Make	Model	Count	ID/Serial No.	Asset Owner	Acquisition Year	Age (Yrs)	Vehicle Mileage	Replacement Cost
RevenueVehicles	BU1 - Bus (5307)		GILLIG	Low Floor	1	15GGB2712B1178405	Kingston	2011	7	89,562	$ 246,000
RevenueVehicles	BU1 - Bus (5307)		GILLIG	Low Floor	1	15GGB2714B1178406	Kingston	2011	7	80,174	$ 246,000
RevenueVehicles	BU1 - Bus (5307)		GILLIG	Low Floor	1	15GGB291371078317	Kingston	2007	11	204,179	$ 246,000
RevenueVehicles	BU1 - Bus (5307)		GILLIG	Low Floor	1	15GGB291571078318	Kingston	2007	11	202,378	$ 246,000
RevenueVehicles	BU1 - Bus (5307)		Dupon Trolley	Champlain 1608	1	1T0Z30B2551153876	Kingston	2005	13	215,786	$ 246,000
RevenueVehicles	BU1 - Bus (5307)		THOMAS	ER3126210	1	2D9P22320X1070529	Kingston	1998	20	61,661	$ 246,000
Facilities	Maintenance (5307)	City of Kingston Garage	N/A	N/A	1	N/A	Kingston	1980	38	N/A	$ 3,500,000

Vehicle Inventory for City of Kingston - Kingston Citibus

Active Fixed

03/05/2019

Operator Veh ID	VIN	Model Year	Manufacturer	Model	Type Description	Status	Service	Length	Seats	WC Sta	WC Access	Bike Rack	Fuel	Engine Manufacturer	Engine Model	Chassis Manufacturer	Chassis Model	Trans Manufacturer	Trans Model	AC Manufacturer	WC Manufacturer	Bus Del Date	PIN	Vehicle Cost New	Last Miles	Max of Date
111	15GGB2712B1178405	2011	GILLIG	Low Floor	13	1	Fixed Route	35	32	2	RAMP	TRUE	DIESEL	CUMMINS	ISM280	GILLIG		ALLISON	B400R	THERMO-KING	BRAUN	4/1/2012		$379,000	89,562	1/31/2014
112	15GGB2714B1178406	2011	GILLIG	Low Floor	13	1	Fixed Route	35	32	2	RAMP	TRUE	DIESEL	CUMMINS	ISM280	GILLIG		ALLISON	B400R	THERMO-KING	BRAUN	4/1/2012		$379,000	80,174	2/28/2014
72	15GGB291371078317	2007	GILLIG	Low Floor	13	1	Fixed Route	35	32	2	RAMP	TRUE	DIESEL	CUMMINS	ISM280	GILLIG	BRAUN	ALLISON	B400R	THERMO-KING	BRAUN	9/15/2007	11.12.02	$303,000	204,179	2/28/2014
73	15GGB291571078318	2007	GILLIG	Low Floor	13	1	Fixed Route	35	32	2	RAMP	TRUE	DIESEL	CUMMINS	GILLIG	ALLISON	BRAUN	ALLISON	B400R	THERMO-KING	BRAUN	9/15/2007	11.12.04	$303,000	202,378	2/28/2014
51	1T0Z30B2551153876	2005	Dupon Trolley	Champlain 1(	13	1	Fixed Route	34	32	2	LIFT	FALSE	DIESEL	CUMMINS	THOMAS	ALLISON		ALLISON	B400R	THERMO-KING	BRAUN	09/01/2004	8792.11.306	$276,815	215,786	02/28/2014
981	2D9P22320X1070529	1998	THOMAS	ER3126210	13	1	Fixed Route	30	32	2	LIFT	FALSE	DIESEL	CATERPILLAR	THOMAS	ALLISON	1608	ALLISON	B-300	THERMO-KING	RICON MIRAGE	10/09/1998	8821.83	$194,000	61,661	02/28/2014